

To: Director and Laboratory Staff
From: Survey and Appraisal
Subject: SURVEY NOTES

FARM SITUATION AND GENERAL BUSINESS ACTIVITY

FARM INCOME DOWN IN JANUARY

Farmers' cash receipts from marketings in January were about 2.1 billion dollars, down seasonally from December and about 10 percent below January 1949. Farmers probably realized 1.1 billion dollars from sales of livestock and livestock products in January, or 15 percent less than January 1949. Crop receipts in January were about 1.0 billion dollars, a little less than a year ago.

Demand and Price Situation, B.A.E., Jan. 1950, p. 11.

COTTON LINT

U.S.D.A. ESTIMATES 9 MILLION BALE CONSUMPTION IN 1949-50

The Department of Agriculture estimated that if the mills continue to run at the present rate, they should consume 9.0 million bales of cotton as compared with 7.8 million bales a year ago, when production was cut by a temporary recession. Cotton consumption in the five-month period August-December 1949 totaled 3.6 million bales or 2 percent above the 3.5 million of August-December 1948. This rate, if sustained, would make the twelve months' 1949-50 total 8.5 million bales; and the total would rise to 9.0 million bales if the mills ran all year at the December rate, which averaged 35.0 thousand bales per working day instead of only 29.4 thousand bales per day in December 1948.

Southern Textile News, January 28, 1950, p. 12.

DELIVERED-AT-MILL PRICE OF COTTON RISING

The delivered-at-mill price of Middling 15/16-inch cotton rose from 32.76 cents in January to 33.72 cents per pound on February 16. Rayon staple prices and cotton fabric prices were stable during the early part of 1950.

Table 1.- Prices of raw cotton, rayon staple and cotton fabrics, and cotton mill margins in cents.

	:Feb. 16:	Jan. :	Dec. :	Nov. :	Jan.
	: 1950 :	: 1950 :	: 1949 :	: 1949 :	: 1949
Cotton, Middling 15/16"	:	:	:	:	:
delivered at mills, lb.....	33.72	32.76	31.93	31.37	34.15
Rayon, viscose staple	:	:	:	:	:
equivalent price 1/, lb.....	31.15	31.15	31.15	31.15	32.93
Rayon, acetate staple	:	:	:	:	:
equivalent price 1/, lb.....	37.38	37.38	37.38	37.38	42.72
Cotton fabrics, average 17 constructions :	:	:	:	:	:
Price for cloth from 1 lb. of cotton 2/	-	69.07	68.46	67.91	65.04
Mill margins 3/.....	-	37.90	38.05	38.17	32.78
Sheeting, 37" 4.00, yd. 4/.....	16.75	16.75	16.50	16.25	16.50
Osnaburg, 36" 2.35, yd. 5/.....	22.00	22.00	21.88	21.00	21.25
Printcloth, 38-1/2" 5.35, yd. 4/.....	15.25	15.25	15.13	15.00	15.00

- 1/ Cost to mill of same amount of usable fiber as supplied by one pound of cotton (rayon price x .89).
- 2/ Price of approximate quantity of cloth obtainable from a pound of cotton with adjustments for saleable waste. (Cotton Branch, P.M.A.).
- 3/ Difference between cloth prices and price (10-market average) of cotton assumed to be used in each kind of cloth (Cotton Branch, P.M.A.).
- 4/ From Daily Mill Stock Reporter. 5/ From Daily News Record.

COTTON CONSUMPTION UP DURING JANUARY

Cotton consumption averaged 37,651 bales per working day during a 4-week working period in January, as compared with 34,953 bales in December and 32,109 bales during January 1949. Stocks dropped from 12.3 million bales at the end of December to 11.7 million bales on January 28 of this year. Spindle activity improved during January.

Table 2.- Cotton consumption and stocks, and spindle hours in cotton mills

	January 1950 <u>2/</u>	December 1949 <u>3/</u>	November 1949 <u>2/</u>	January 1949 <u>2/</u>
Consumption, average per working day, bales:	37,651	34,953	35,919	32,109
On hand, 1000 bales.....	11,725	12,333	11,972	9,840
Active spindle hours, billions.....	9.1	9.2	9.4	8.4
Spindle activity, percent of capacity <u>1/</u> ..	133.0	124.7	124.8	112.0

1/ Includes activity on fibers other than cotton totaling 0.3 to 0.6 billion spindle hours for each month shown.

2/ Based on 4-week period.

3/ Based on 5-week period.

From Bureau of the Census reports.

COTTON PRODUCTS

AUTOMOTIVE INDUSTRY: SYNTHETIC FIBERS AND OTHER MATERIALS REPLACING COTTON AND OTHER NATURAL FIBERS

According to President J. R. Miller of the National Automotive Fibers, Inc., Detroit, synthetic fibers and other materials are replacing natural fibers for use in tires, sidewall upholstery fabric, body cloth fabric to cover cushions and backs of seats, headlining fabric to cover ceilings of cars, seat cushion pads, and floor carpeting.

Rayon and minor quantities of nylon are the principal raw fibers used in automobile tires, a product which at one time used cotton entirely. Until recently, all sidewall upholstery material was made of blends having cotton warp yarns and filling yarns of 70 to 90 percent wool and 10 to 30 percent cotton; now viscose and acetate rayon are being used in both warp and filling.

Mohair body cloth was used in 70 to 80 percent of the automobiles in the past, but now only about 20 percent of the cars use it; the balance of the cloth is made from mixtures of nylon, rayon, wool, and cotton. In headlinings, cotton had 100 percent of the business in earlier years, but the trend now shows increased use of paper and rayon.

Seat cushion pads were formerly made of cotton, linters, cotton waste, and mixtures of these fibers, but today the use of these raw materials has dropped 40 percent due to competition from foam rubber pads.

Both in the automotive and domestic fields for many years carpets were made with a wool face, jute stuffer, and an all-cotton filler. Now wool and rayon blends are used for the face, and craftwood is used for the stuffer and filler. Other competitors in the carpeting field are all rubber floor covers and a non-woven

fabric "Moh-Nat" composed of mohair, jute, and rubber.

Saran and other plastics are being used for interior trim, slip covers, and other items, replacing natural fibers.

Daily News Record, Jan. 26, 1950, p. 59.

BAGS: PRICES STABLE DURING 1950

Prices of new bags on February 15 were \$239.00 per thousand for cotton flour bags, \$243.65 for burlap bags, and \$94.15 for paper, or about the same as prices quoted on January 15.

Table 3.- Mid-month prices of 100 pound flour bags

(Dollars per thousand)					
	February	January	December	January	
	1950	1950	1949	1949	
<u>Prices, new, St. Louis 1/</u>					
Cotton.....	239.00	239.00	239.00	237.00	
Burlap.....	243.65	243.85	243.85	234.25	
Paper.....	94.15	94.15	94.15	114.05	
<u>Prices, second-hand, New York</u>					
Cotton, once-used 2/.....	4/	155.00	150.00	140.00	
Cotton, bakery run 3/.....	100.00	100.00	100.00	110.00	
Burlap, once-used 2/.....	4/	110.00	120.00	115.00	
Burlap, bakery run 3/.....	105.00	100.00	100.00	115.00	
Paper, bakery run 3/.....	5.00	5.00	5.00	10.00	
<u>Difference</u>					
Cotton, new minus once-used....	4/	84.00	89.00	97.00	
Cotton, new minus bakery run...	129.00	139.00	139.00	127.00	
Burlap, New minus once-used....	4/	133.85	123.85	119.25	
Burlap, new minus bakery run...	138.65	143.85	143.85	119.25	
Paper, new minus bakery run....	89.15	89.15	89.15	104.05	

1/ Cotton, 37" 4.00 yd. sheeting cut 43" unprinted; burlap, 36" 10 o., cut 43" unprinted; paper, 18 x 4-1/2 x 36-3/4" unprinted; all l. c. l. shipments. No allowance made for quantity or cash discounts. From a large bag manufacturer.

2/ From a large second-hand bag dealer.

3/ From Daily Mill Stock Reporter.

4/ No data available.

BAGS: BAG INDUSTRY'S 1949 USE OF COTTON UP; BURLAP AND PAPER DOWN

Cotton fabric used by the bag industry rose from 614 million yards in 1948 to 633 million yards in 1949. Burlap use dropped from 700 million yards to 620 million yards, the lowest use since 1944. Paper consumed in shipping sacks declined from 667 thousand tons to 475 thousand tons, which is quite a decline when compared to the last three or four years. (Table 4).

Table 4.-- Quantities of cotton fabric, burlap, and shipping sack paper used in bags in the United States, 1939-49; cotton equivalents

Quantities 1/		Cotton equivalents 2/									
Year	Cotton fabric	Burlap	Paper	Cotton fabric	Burlap	Paper	Total	Cotton fabric	Burlap	Paper	Total
	Million yards	Million yards	1,000 tons	1,000 bales	1,000 bales	1,000 bales	1,000 bales	Percent	Percent	Percent	Percent
1939	816	712	201	503	449	390	1,342	38	33	29	100
1940	890	648	195	546	408	378	1,332	41	31	28	100
1941	927	620	270	571	390	524	1,485	39	26	35	100
1942	1,183	306	251	725	193	487	1,405	51	14	35	100
1943	1,283	373	315	817	235	611	1,663	49	14	37	100
1944	1,052	609	392	659	383	761	1,803	37	21	42	100
1945	938	819	424	586	516	824	1,926	30	27	43	100
1946	760	940	550	474	593	1,069	2,136	22	28	50	100
1947	714	831	671	446	524	1,304	2,274	20	23	57	100
1948	614	700	667	383	442	1,296	2,121	18	21	61	100
1949 3/	633	620	475	395	391	923	1,709	23	23	54	100

1/ Cotton fabric and burlap totals are from trade sources. Paper totals are quantities of shipping sack paper manufactured as compiled by the Bureau of the Census except for 1939 and 1940, which are estimated consumption figures compiled by the War Production Board.

2/ Cotton equivalents of cotton fabrics have been calculated on the basis of bag constructions most generally used, allowing for non-cotton content and waste. For burlap and paper, estimates are on basis of replacement of bags made of these materials by cotton bags now used for same commodities or by typical cotton bags. Bales are 480 pounds net. Rough preliminary estimates.

3/ Preliminary.

FABRIC: PRODUCTION TOTALS 8-1/2 BILLION YARDS IN 1949

According to the Bureau of the Census, production of cotton broad woven goods for 1949 amounted to 8,513 million linear yards, compared with 9,641 million yards in 1948. Fourth quarter 1949 production of cotton broad woven goods was 2,315 million linear yards. This was 19 percent greater than third quarter production and 2 percent more than in the fourth quarter of 1948.

Journal of Commerce, Feb. 21, 1950, p. 16.

HOSTERY: COTTON SECOND TO NYLON IN 1949 SHIPMENTS; NYLON SHIPMENTS INCREASE DURING 1948 AND 1949 WHILE COTTON REMAINS STABLE

Shipments of cotton hosiery for the last three years were higher than any other type of hosiery except nylon. Cotton hosiery shipments totaled 31 million dozen pairs in 1949 as compared with 51 million for nylon; 14 million for rayon; 7 million for wool; and minor quantities for silk and mixtures. Shipments of cotton hosiery for 1949 were 4 percent below 1947, while nylon shipments increased by 42 percent. Rayon shipments were 36 percent lower than 1947; wool, 18 percent lower; silk, 80 percent lower; and mixtures, 81 percent lower.

Table 5.- Shipments ^{1/} of hosiery by fiber, United States, 1947-49

	(Thousand dozen pairs)						
	Total	Cotton	Wool	Silk	Rayon	Nylon	Mixtures
1947, Total	102,944	32,549	8,065	975	21,370	35,652	4,333
Women's full fashioned	39,251	275	-	898	3,093	31,129	3,856
Women's seamless	9,893	3,225	105	1	2,557	3,528	477
Men's seamless half hose	23,996	11,993	3,357	28	8,195	423	-
Men's seamless slack socks	21,078	11,409	1,524	48	7,525	572	-
Bundle goods, seamless	7,159	5,389	1,770	-	-	-	-
Athletic socks, seamless	1,567	258	1,309	-	-	-	-
1948, Total	101,593	30,816	6,215	173	18,345	44,135	1,909
Women's full fashioned	42,879	168	-	131	1,194	39,698	1,688
Women's seamless	8,033	2,463	89	7	1,821	3,432	221
Men's seamless half hose	16,496	8,144	1,824	10	6,220	298	-
Men's seamless slack socks	25,414	14,453	1,119	25	9,110	707	-
Bundle goods, seamless	6,935	5,258	1,677	-	-	-	-
Athletic socks, seamless	1,836	330	1,506	-	-	-	-
1949, Total	103,477	31,368	6,606	190	13,731	50,780	802
Women's full fashioned	45,403	146	-	163	50	44,423	621
Women's seamless	7,114	1,856	74	14	1,384	3,605	181
Men's seamless half hose	15,037	7,586	2,093	6	4,857	495	-
Men's seamless slack socks	26,924	16,302	918	7	7,440	2,257	-
Bundle goods, seamless	6,903	5,199	1,704	-	-	-	-
Athletic socks, seamless	2,096	279	1,817	-	-	-	-

^{1/} Misses' and women's ribbed seamless hosiery; men's seamless half hose; seamless crew socks; children's and infant's seamless hosiery; and seamless anklets are not included, for quantitative data broken down by fibers are not available. These shipments comprised about 70 percent of the total hosiery shipments during 1947, 1948, and 1949.

Based on data from "Hosiery Statistics," National Assn. of Hosiery Manufacturers.

INDUSTRIAL USES EXCEED HOUSEHOLD AND APPAREL USES OF COTTON IN 1947

Based on figures released by the National Cotton Council, cotton consumption in 1947 totaled 7,963 thousand bales, of which 37 percent was used in industrial uses, 29 percent in household uses, and 34 percent in apparel uses. Tire cord and bags accounted for 863 and 484 thousand bales, respectively, of the 2,935 thousand bales consumed in industrial uses. Sheets were the most dominant household use, and shirts the most important apparel use.

Table 6.- Cotton consumption by end uses, United States, 1947

Use	Quantity		Use	Quantity	
	: 1,000 :			: 1,000 :	
	: bales 1/ : Percent :			: bales 1/ : Percent :	
GRAND TOTAL.....	7,963	100.0	Household uses (cont'd):		
Industrial uses.....	2,935	36.9	Bedspreads.....	171	2.1
Tire cord.....	863	10.8	Blankets.....	167	2.1
Other automobile uses:	161	2.0	Curtains.....	146	1.8
Bags.....	484	6.1	Other.....	493	6.2
Insulation.....	173	2.2	Apparel uses.....	2,740	34.4
Cordage.....	167	2.1	Shirts.....	558	7.0
Industrial thread....	149	1.9	Trousers.....	310	3.9
Laundry equipment....	124	1.6	Men's underwear.....	288	3.6
Medical supplies.....	112	1.4	Overalls.....	162	2.0
Other.....	702	8.8	Men's hosiery.....	161	2.0
Household uses.....	2,288	28.7	Men's gloves.....	134	1.7
Sheets.....	451	5.7	Shoes.....	119	1.5
Drapery, upholstery..	376	4.7	Women's dresses.....	118	1.5
Towels.....	303	3.8	Others.....	890	11.2
Rugs, carpets.....	181	2.3			

1/ 478-pound, net weight bales.

Based on data from "Cotton Counts Its Customers," National Cotton Council, December 1949.

TIRE FABRIC: PRICES UNCHANGED.

Open market tire fabric prices remained unchanged from January 1 to February 1 of this year.

Table 7.- Prices of cotton and rayon tire fabric, February 1 and January 1, 1950

Fabric	Cord	Fabric weight:	Price per pound	Price per sq. yd.
		per sq. yd. 1/	Feb. 1	Jan. 1
		Pound	Cents	Cents
Passenger car tires:				
Cotton fabric...:12/4/2:	.91		63.5-64.5	63.5-64.5
Cotton fabric...:12/3/3:	.94		64.5	60.6
Rayon fabric....:1650/2:	.79		61.5	48.6
Truck tires				
Rayon fabric....:1100/2:	.62		64.0	39.7
Rayon fabric....:1650/2:	.78		61.5	48.0
Rayon fabric....:2200/2:	.82		60.5	49.6

1/ These are typical fabric weights and vary somewhat for different tire manufacturers. Based on reports from independent rubber companies.

COMPETITIVE PRODUCTS

NYLON: UNITED STATES GOVERNMENT CHANGE TO NYLON FLAGS

The cotton-and-wool American flags atop federal buildings are to be replaced with nylon flags. The Federal Buildings Management Division disclosed that tests have shown the nylon flags, though twice as expensive, last three times as long. The Federal Government uses between 10,000 and 15,000 flags a year on about 1,400 buildings throughout the country. In good weather a 10 by 19 foot flag, costing about \$15 is used. In stormy weather it is replaced by a \$5.40, 5 by 9 foot banner.

Journal of Commerce, Feb. 10, 1950, p. 10.

NYLON: AUTOMOBILE INNER TUBE OF NYLON CORD DEVELOPED

A new automobile inner tube made with nylon cord and said to be stronger and safer than any other tube ever developed was announced recently by the United States Rubber Company. Reinforced with two plies of nylon cord and designed for maximum protection against the hazards of sudden deflation due to punctures or blowouts, the new tube has a reserve strength almost equal to that of the tire itself, said Dr. A. W. Bull, director of tire development.

Daily Mill Stock Reporter, Feb. 11, 1950, p. 7.

NYLON: SALTS FROM COAL, NATURAL GAS USED NOW; SALTS FROM PETROLEUM TO BE USED BY 1951

According to the Du Pont Corporation, petroleum will be used for the carbon content of some of Du Pont's nylon salt, when the new nylon salt unit at Victoria, Texas, is completed in 1951. Coal will continue to be used in the company's original plant for the production of nylon salt, at Belle, W. Va., and natural gas at the company's other nylon salt unit at Orange, Texas.

Journal of Commerce, Jan. 31, 1950, p. 16.

RAYON: HIGH BUILDING COSTS BLOCKING NEW RAYON TIRE CORD PLANTS

In spite of an increasingly tight supply situation, high construction costs rule out any substantial increases in rayon tire cord capacity during the near future. At current rates of production and consumption there may be a shortage in 1950 of 25 million pounds of viscose high-tenacity rayon yarn. While most tire cord producers are currently expanding capacity of existing plants to meet this tight supply situation, new plants are definitely unlikely for the time being because of anticipated difficulty in amortizing investments in new facilities at present building costs. Some of the major tire producers, as well as current producers of rayon high-tenacity yarn and tire cord, had been contemplating the construction of new yarn and tire cord units.

As far as the current producers of rayon are concerned, a number of considerations stand in the way of additional tire cord plants, which are estimated to cost around \$25 million each: (1) the possibilities of shifting equipment from the production of viscose textile yarn to viscose high-tenacity yarn output; (2) uncertainty about the permanent size of the market for rayon tire cord; and (3) the chance that some tire manufacturers may build their own rayon plants.

Journal of Commerce, Jan. 23, 1950, p. 16.

RAYON: BROAD WOVEN FABRIC PRODUCTION DECLINES IN 1949

According to the Bureau of the Census, the total production of rayon broad woven goods for 1949 totaled 1,930 million linear yards, compared with 2,181 million

linear yards in 1948. Fourth quarter production of rayon broad woven goods amounted to 529 million linear yards, 17 percent greater than third quarter production, but still 3 percent below the fourth quarter of 1948. Nylon fabric production continued to increase during the fourth quarter. Output amounted to 28 million yards, almost three times as great as during the corresponding period last year and approximately seven times that of the fourth quarter of 1947.

Journal of Commerce, Feb. 21, 1950, p. 17.

RAYON: CELANESE REPORTED PLANNING SHARP FORTISAN OUTPUT RISE

The Celanese Corporation is planning a sharp increase in its production of saponified rayon acetate fiber, Fortisan. The cost of the manufacture of this fiber and its comparative inelasticity have hindered further development of Fortisan for commercial purposes. The company claims it has developed new processes to materially reduce the cost involved and also expects to increase its elasticity somewhat. The entire program of stepping up production of Fortisan is in the blue print stage.

Journal of Commerce, Feb. 16, 1950, p. 16.

RAYON: UNITED STATES PRODUCED 37 PERCENT OF WORLD'S PRODUCTION IN 1949

The United States produced 37 percent of the world's rayon production in 1949, as compared with 45 percent in 1948, 57 percent in 1945, and 19 percent in 1940. This country produced 49 percent of the world's yarn production and 19 percent of the staple fiber production in 1949.

Table 8.- Rayon production for the United States and the World, 1940-49

(Million pounds)								
Year.	World production			U.S. production as percent of World				
	Yarn	Staple	Total	Yarn	Staple	Total		
1940	1,186	1,285	2,471	32.9	6.3	19.1		
1941	1,265	1,552	2,817	35.7	7.9	20.3		
1942	1,200	1,456	2,656	39.9	10.5	23.8		
1943	1,153	1,392	2,545	43.5	11.6	26.1		
1944	1,033	1,052	2,085	53.7	16.0	34.7		
1945	897	501	1,398	69.5	33.6	56.7		
1946	1,103	574	1,677	61.4	30.7	50.9		
1947	1,318	694	2,012	56.6	32.9	48.5		
1948	1,557	920	2,477	55.0	29.1	45.4		
1949	1,640	1,050	2,690	48.7	18.5	36.9		

Rayon Organon, February 1950, p. 18.

RAYON: CONSUMPTION DROPS DURING 1949

Total rayon consumption increased from 464 million pounds in 1940 to a peak of 1,101 million pounds in 1949, and then it declined to 976 million pounds in 1949. Viscose filament yarn consumption totaled 530 million pounds in 1949; acetate filament yarn, 251 million pounds; viscose staple, 130 million pounds; and acetate staple, 65 million pounds. (Table 9).

Table 9.- Rayon consumption by types, United States,
for specified years and months

(Million pounds)									
	Filament yarn				Staple				Total
	Viscose	Acetate	Total		Viscose	Acetate	Total		
1940.....	257.7	131.0	388.7	::	65.3	10.3	75.6	::	464.3
1942.....	301.5	167.3	468.8	::	126.1	25.7	151.8	::	620.6
1945.....	432.6	169.8	602.4	::	126.0	39.1	165.1	::	767.5
1946.....	482.6	183.8	666.4	::	131.7	43.4	175.1	::	841.5
1947.....	511.6	217.4	729.0	::	163.9	58.6	222.5	::	951.5
1948.....	546.8	289.7	836.5	::	182.6	81.6	264.2	::	1,100.7
1949.....	530.2	250.9	781.1	::	129.6	64.8	194.4	::	975.5
1948,Dec..	47.8	27.4	75.0	::	16.0	5.2	21.2	::	96.2
1949,Nov..	49.2	26.5	75.7	::	15.5	8.8	24.3	::	100.0
1949,Dec..	53.3	26.4	79.7	::	15.5	8.4	23.9	::	103.6
	:	:	:	::	:	:	:	::	:

From Rayon Organon.

RAYON TIRE FABRIC: CONSUMPTION OF RAYON IN TIRE FABRIC AND RELATED PRODUCTS
TOTAL 281 MILLION POUNDS IN 1949

According to the Rayon Organon, there was 281 million pounds of rayon used in tires and related products in 1949, as compared with 253 million pounds in 1948, 187 million pounds in 1945, and 9 million pounds in 1939.

Rayon Organon, February 1950, p. 24.

RAYON: PATENT TO PRODUCE YARN FROM STAPLE FIBER

A patent, No. 2,492,306, granted to John Pringle Mackie of Belfast, North Ireland, describes a method of producing yarn from staple fiber. Slivers of staple fibers are formed from tows of continuous filaments by this method. A number of such tows are produced in parallel position and cut lengthwise at spaced intervals into successive bunches. A number of these bunches are placed simultaneously end-on to a carding machine in continuous succession.

Daily News Record, Feb. 10, 1950, p. 24.

RAYON: SPUN-DYED VISCOSE TOW PRODUCED IN CLEVELAND, OHIO

According to President Leon J. Weil of the National Rayon Corp., they have leased their Cleveland plant to another company for the purpose of experimental production of "spun dyed" viscose process rayon tow. While there currently is production of viscose process rayon staple which has been colored before spinning and some tow which has been dyed in the length, it is believed that this experimental production is the first in which the tow has been colored before extrusion. It is understood the tow is being produced in 2200-denier, which suggests its use is contemplated for the "direct spinner" as made by Saco Lowell Shops rather than for use on the Perlok system of the Pacific converter. Quantities available are reported to be limited, but a fairly wide range of colors is possible.

Daily News Record, Feb. 10, 1950, p. 1.

DYNEL: END USES, PRICE, AND PROPERTIES GIVEN

According to the Carbide and Chemical Corp., Dynel (vinyon staple) can be used for blankets, coverlets, draperies, shower curtains, carpets, pile fabrics, sweaters, half hose, resist yarns, show fabrics, stiffened fabrics (collars, hats, cap bands, visors), infant wear, suiting blends, snow and ski suits, scarves,

bathing suits, shirtings, rainwear, work clothing, filter fabric, tarpaulins, anode bags, water softener filters, molded fabrics, insulation fabrics, dye and laundry nets, leader cloths, asbestos core yarn, and diaphragms. Dynel is now available in semi-commercial quantities at \$1.25 per pound f.o.b. delivery point of rail carrier nearest the point of destination of shipments in the United States. Shipments are made in 100- and 200-pound bales.

Some of its properties are:

Filament shape - irregular ribbon-shaped cross section.

Specific gravity - 1.28 as determined in a heptane-carbon tetrachloride mixture at 81° F.

Moisture regain - At 65 percent RH and 77° F., less than 5 percent.

Tenacity - 2.5 to 3.0 grams per denier.

Elongation - 35 percent.

Stiffness - Average stiffness of 7.9 grams per denier.

Resistance to mildew and fungus - In tests in which dynel fabrics were buried in soil and held under tropical conditions of 87° F. and 97 percent relative humidity, no deterioration of the cloth could be detected after six months. Eight-ounce army duck disintegrated completely in ten days under the same conditions. In other types of tests, such as mineral-base-agar and free-handing tests, no fungus attack has been observed.

Light stability - After Florida exposures of 400 "sun hours" (approximately 80 days) on low denier fibers, Dynel retained approximately 50 percent of its original tenacity, compared with a tenacity retention of 11 to 35 percent for the cellulose-base fibers. These observations are not in complete agreement with those obtained with "Fadeometer" tests, for it has been found that exposures to the "Fadeometer" constitute highly accelerated aging conditions for Dynel yarns.

"Technical Information," Dynel, Carbide and Carbon Chemical Corp.

VINYON: AMERICAN VISCOSE TO DISCONTINUE PRODUCTION OF FILAMENT

According to an announcement by the American Viscose Corp., they will discontinue the production of Vinyon CF filament yarn by the end of April or in May. Production would be concentrated on the Vinyon HH staple fiber. But before the production of Vinyon CF filament yarn is stopped, the company would try to provide customers with sufficient yarn to take care of requirements for the near future. Vinyon CF filament yarn and Vinyon HH staple are made of a Vinylite resin which is a copolymer of vinyl chloride and vinyl acetate.

Daily News Record, Jan. 10, 1950, p. 1.

WOOL: 1949 CONSUMPTION DOWN 29 PERCENT FROM 11-MONTH PERIOD OF 1948

Consumption of raw wool, on a scoured basis, totaled 452.8 million pounds during January-November 1949, or 29 percent under the quantity consumed during the same period of 1948. Of this 184.2 million pound decline, apparel class wool

consumption dropped 140.5 million pounds, and carpet class wool 43.7 million pounds. Use of apparel class wool has declined for each month reported since September of 1949, while carpet class wool use dropped from September to October and increased from October to November.

Table 10.—Consumption of wool of the sheep, scoured basis, United States, for the specified periods and months.

(Million pounds)									
	Apparel class			Total	Carpet class, foreign			Total	Grand total
	Woolen	Worsted			Woolen	Worsted			
	: system	: system	:		: system	: system	:		
1948, Jan.-Nov. 1/	153.0	295.1	:	448.1	182.7	6.2	:	188.9	637.0
1949, Jan.-Nov. 1/	127.2	180.4	:	307.6	142.4	2.8	:	145.2	452.8
1949, September 2/	15.0	21.0	:	36.0	13.0	.5	:	13.5	49.5
1949, October 3/	13.6	20.0	:	33.6	12.8	4/	:	12.8	46.4
1949, November 3/	11.2	18.0	:	29.2	13.6	.4	:	14.0	43.2
	:	:	:	:	:	:	:	:	:

1/ Total for 47 weeks.

2/ Total for 5 weeks.

3/ Total for 4 weeks.

4/ Negligible, less than 500,000 pounds.

Facts for Industry "Wool Manufactures," Bureau of the Census.

WOOL: REPORT GIVES RECOMMENDED RESEARCH SUGGESTIONS

In a booklet released by the Wool Bureau entitled "Suggested Research and Development Studies of the Woolen and Worsted Industry," technical director Giles E. Hopkins gives recommendations on wool research, classified generally as specific problems, laboratory and standard testing, product development, and production and marketing.

Among the specific problems recommended for research are: Wool Scouring and Wool Grease Recovery, Chemical Modification to Give Whiter Wools, Lubrication of Wool Fiber for Processing, Cause of Difference Between Skein and Top Dyed Yarns, Device to Tie in Warp Beams, and Carbonization.

In the field of laboratory tests and standards are mentioned: Laboratory, or Miniature, Reproductions of Mill Processing Equipment, Simplified Tests for Wool Fiber Characteristics, Wool Dermatitis and Allergies, Sorption of Gases by Wool, Electrostatics, and Effect of Heat, Moisture, and Time on Fiber Quality.

Product development research suggested covered: Scientific Design of Wool Fabrics, and Protective Clothing. In the field of production and marketing the recommendations named were: Elimination of Black Fibers from White Wool, and Improved Containers for Shipping Wool.

Daily News Record, Jan. 24, 1950, p. 5.

PAPER: PRODUCTION OF SHIPPING SACK PAPER FOR 1949 TWENTY-NINE PERCENT BELOW 1948

Production of shipping sack paper for 1949 totaled 475 thousand tons as compared with 667 thousand tons in 1948, 424 thousand tons in 1945, and 201 thousand tons in 1939. (Table 11).

Table 11.- Production of shipping sack paper, United States, 1939-49.

(1000 tons)						
Year	Production	Year	Production	Year	Production	
1939....:	201	:: 1943....:	315	:: 1947....:	671	
1940....:	195	:: 1944....:	392	:: 1948....:	667	
1941....:	270	:: 1945....:	424	:: 1949 1/2:	475	
1942....:	251	:: 1946....:	550	::		
:		::		::		

1/ Preliminary.

From Facts for Industry, "Pulp and Paper Manufactures," Bureau of the Census.

PLASTICS: DU PONT DEVELOPS NEW COATED UPHOLSTERY FABRIC FOR TRUCKS, FARM EQUIPMENT

The Du Pont Company has developed an ethylenic plastic coated fabric called "Armalon" for use as upholstery in trucks, farm equipment, and other uses. It is claimed that this fabric will withstand "heavy seating traffic," will remain soft and pliable after long service, and that it is resistant to all types of weather. Armalon has no plasticizer or anti-oxidant as the usual types of coated fabrics have. It is produced at the Fairfield, Conn., plant.

Agricultural News Letter, E. I. du Pont de Nemours & Co.
January-February 1950, p. 17.

TEXTILE RESEARCH AND EDUCATION

START U. S. RUBBER LABORATORY AT WINNSBORO, S.C.

During 1949, work was inaugurated on a \$250,000 laboratory for textile research and development at the Winnsboro Mills, largest of the nine mills operated by the U. S. Rubber Co. The new laboratory will permit consolidation of the research and development work now carried on in Winnsboro, S. C., Hogansville, Ga., and elsewhere, and will enable a substantial expansion in the direction of the textile research. It will have laboratories, shops, and pilot plants. S. H. Sherman, development manager of the textile division, will be in charge of the laboratory. The principal uses of textiles in company-manufactured products at present are in tires, footwear, waterproof clothing, belting, hose, and insulated wire.

Journal of Commerce, Jan. 31, 1950, p. 17.

OILSEEDS AND RELATED PRODUCTS

DOMESTIC FATS AND OILS PRODUCTION TO CONTINUE AT NEAR-RECORD LEVELS

Production of fats and oils will continue at record or near-record levels in the remainder of the 1949-50 crop year, and probably will be large again in 1950-51. The expected increase of about 6 percent in the 1950 pig crop presages a moderate increase in lard and grease output next fall and winter over the large production in the current season. It is expected that farmers will replace corn and cotton acreage to some extent with soybeans in 1950. With an expanded soybean acreage in 1950, production of soybean oil in 1950-51 may increase enough to offset the decline in cottonseed oil output that will result from the reduction in cotton acreage.

Continued large production of fats and oils in this country permitted exports more than twice as great as in 1948 and about 4 times as large as before the war. Whereas in 1948 net imports contributed 365 million pounds of fats and oils to our supplies, in 1949 there were net exports of more than 1 billion pounds.

Fats and Oils Situation, Jan. 1950, p. 1.

VEGETABLE OIL PRICES MODERATELY HIGHER: MEALS DECLINE

Recent prices of most major vegetable oils have changed only moderately from the December and January levels. Price increases were highest in corn, peanut, and soybean oils. February 13th prices of coconut and tung oil, while slightly higher than the average January quotations, were still above those of the same time a year ago. Linseed oil prices declined over 10 cents a pound during a similar period.

Prices of most meals were down from \$2.50 to \$14.35 a ton as of February 11, as compared with the average for the previous month.

Table 12. - Prices of vegetable oils and meals

	Feb. 1950	Jan. 1950 <u>11/</u>	Dec. 1949	Feb. 1949
	Cents per pound			
<u>OILS</u> <u>1/</u>	<u>Feb. 13</u>			
Cottonseed oil	11.5	11.1	10.1	13.1
Peanut oil	14.0	13.4	11.8	16.1
Soybean oil	11.3	10.8	10.2	12.3
Corn oil	13.0	11.8	10.7	13.7
Coconut oil <u>2/</u>	17.3	17.2	16.6	16.8
Linseed oil <u>3/</u>	18.5	18.4	18.5	28.8
Tung oil <u>4/</u>	28.3	28.1	28.0	22.0
	Dollars per ton			
<u>MEALS</u> <u>5/</u>	<u>Feb. 11</u>			
Cottonseed meal <u>6/</u>	56.50	59.00	61.30	58.50
Peanut meal <u>7/</u>	49.00	63.35	63.10	67.50
Soybean meal <u>8/</u>	59.00	65.50	68.80	65.80
Coconut meal <u>9/</u>	58.50	58.50	57.40	69.45
Linseed meal <u>10/</u>	65.00	69.30	73.10	70.50

- 1/ Crude, tanks, f.o.b. mills except as noted. From Oil, Paint and Drug Reporter (daily quotations) and from Fats and Oils Situation, BAE (monthly quotations).
- 2/ Crude, tanks, carlots, Pacific Coast. Three cents added to allow for tax on first domestic processing.
- 3/ Raw, drums, carlots, New York.
- 4/ Drums, carlots, New York.
- 5/ Bagged carlots, as given in Feedstuffs (daily quotations) and Feed Situation, BAE (monthly quotations).
- 6/ 41 percent protein, Memphis.
- 7/ 45 percent protein, S. E. Mills.
- 8/ 41 percent protein, Chicago.
- 9/ 19 percent protein, Los Angeles.
- 10/ 34 percent protein, Minneapolis.
- 11/ Preliminary.

STATISTICS GIVEN ON OILSEEDS CRUSHED AND PRODUCTION OF CRUDE OILS AND MEALS PRODUCED DURING 1930-49

Quantities of oilseeds crushed, and production of crude oils and meals during the last several years are shown in table 13. Note that the tonnage of soybeans crushed has increased by nearly 6 times since 1935-39, while the tonnage of cottonseed and flaxseed has increased only slightly and the tonnage of peanuts crushed has declined.

Table 13.- Quantities of oilseeds crushed and production of crude oils and meals, United States, 1930-48, and monthly figures for 1949 crop year

	Quantities crushed			Production of oil (crude)			Production of meal		
	Cotton- seed	Soy- bean	Peanut- 1/	Flax- seed	Cotton- seed	Soy- bean	Peanut- Linseed	Cotton- seed	Soy- bean
	1,000 : tons	1,000 : tons	1,000 : tons	1,000 : tons	1,000 : tons	1,000 : tons	1,000 : tons	1,000 : tons	1,000 : tons
CROP YEAR 2/									
Averages									
1930-34	4,474	147	3/	626	700	21	11	209	119
1935-39	4,653	1,064	82	775	723	162	33	268	347
1940-44	4,223	3,422	170	1,229	664	504	63	423	2,743
Annual totals:									
1945	3,262	4,784	45	822	509	707	50	294	3,337
1946	3,090	5,107	132	689	486	765	68	243	4,086
1947	4,081	4,841	137	842	637	766	63	298	3,333
1948 4/	5,332	5,502	80	1,044	852	903	72	372	4,328
1949									
Aug.	207	407	5/	112	32	68	3	39	319
Sept.	586	360	1.1	109	92	60	3	36	280
Oct.	748	526	5/	97	121	86	11	34	415
Nov.	785	514	5/	91	126	83	16	31	406
Dec.	677	519	5/	89	109	83	13	31	407

1/ Not including No. 2 shelled peanuts diverted for crushing as follows, in tons (shelled): 1943, 13,000; 1944, 101,000; 1945, 117,000; 1946, 80,000; 1947, 116,511; 1948, 121,438; August (1949), 6,587; September (1949), 5,567; October (1949), 25,596; November (1949), 38,344; December (1949), 28,958.

2/ Crop year beginning in August for cottonseed, October for soybean, September for peanuts, and July for flaxseed.

3/ No data available.

4/ Preliminary.

5/ Less than 500 tons.

From data in Agricultural Statistics, 1930-46; and from Facts for Industry, Bureau of the Census, and reports of Bureau of Agricultural Economics, 1946-49.

CASTOR BEANS: SOUTH AFRICA TO ATTEMPT COMMERCIAL PRODUCTION

The Union of South Africa expects to produce castor beans on a commercial scale in 1950. This is the only major vegetable oilseed of importance in the country's economy which has not been produced locally.

Approximately 10,000 acres in the Western Transvaal are being planted to a dwarf castor plant known as mauthner. The seed originally came from Hungary. Experimental and research work during the past two years has shown it to be adapted to the limited rainfall conditions which prevail in the Western Transvaal. South Africa has depended on imports of castor beans and oil in the past. In 1946 the value of these purchases amounted to 362 thousand pounds (approximately \$1,460,000).

The Cotton Gin and Oil Mill Press, Jan. 21, 1950, p.24.

COTTONSEED: NEW SOLVENT EXTRACTION PLANT TO BE ERECTED

Officials of the Buckeye Cotton Oil Company announced plans for erecting a cottonseed solvent extraction unit at their Augusta, Georgia, mill. The unit will be located on Molly Pond Road opposite the company's present installation. Construction will begin immediately, and the new plant probably will be in operation in about 10 months.

This unit will employ the most modern equipment available for extracting oil from cottonseed. The solvent extraction method has the advantage of removing greater quantities of oil and insuring more uniform, high quality oil, company spokesmen said. It was also pointed out that cattle food made from the meal remaining after the oil has been extracted is of better color and quality than that obtained by older methods.

Oil Mill Gazetteer, Jan. 1950, p. 37.

DOMESTIC USE OF SHELLED PEANUTS 13 PERCENT ABOVE LAST YEAR

Shelled peanuts used domestically (total all types and grades) during the 1948-49 season amounted to 710 million pounds, an increase of 13 percent over the 627 million pounds consumed during 1947-48. Edible grade shelled peanuts used during the past season amounted to 484 million pounds, 9 million pounds less than the 493 million used during the 1947-48 season. Shelled peanuts crushed for oil, cake and meal totaled 226 million pounds last season, an increase of about 69 percent over the 1947-48 season.

Table 14.- Shelled peanuts (raw basis) reported used domestically in primary products

	Season September 1 - August 31				
	1948-49	1947-48	1946-47	1945-46	1944-45
	1,000	1,000	1,000	1,000	1,000
	pounds	pounds	pounds	pounds	pounds
TOTAL, all grades.....	710,596	627,252	754,189	881,024	954,925
Edible grades, total.....	484,431	493,266	567,727	678,892	738,399
Peanut candy 1/.....	107,181	119,814	145,938	134,531	148,185
Salted peanuts.....	120,018	117,155	151,218	171,709	247,392
Peanut butter 2/.....	250,184	250,858	258,878	358,048	324,690
Other products.....	7,048	5,439	11,693	14,604	18,132
Crushed for oil, cake					
and meal 3/.....	226,165	133,986	186,462	202,132	216,526

1/ Includes peanut butter made by manufacturers for own use in candy for years 1946-48.

2/ Excludes peanut butter made by manufacturers for own use in candy for years 1946-48.

3/ Includes ungraded or straight run peanuts.

From Peanut Stocks and Processing, BAE, January 1950.

SAFFLOWER: DOMESTIC PRODUCTION HELD PROFITABLE ON GREAT WESTERN PLAINS

Safflower may now be added to the list of commercial crops that can be profitably grown on much of the semi-arid area of the great Western Plains. This seed yields an oil with drying characteristics similar to linseed oil and a protein press cake or meal suitable for livestock feed. The oil is also edible. The oil content of the safflower seed recently has been increased about 50 percent over earlier varieties through the work of the University of Nebraska. Methods of extracting the oil have been improved, and several plants are processing seed from the 1949 crop. Over 8 million pounds of oil are expected to be produced from the 1949 crop, or about 1 percent of the linseed oil production.

The Agricultural Situation, Jan. 1950, p. 10.

SOYBEANS: NO ACREAGE CONTROLS ON 1950 CROP

The Department of Agriculture stated that the establishment of acreage controls on 1950 crop soybeans could not be justified by the existing supply and carryover picture. The carryover or reserve supply of old-crop soybeans last October 1, before the 1949 crop came in, was only about 3 million bushels. This represented about one and one-half percent of the annual production in 1948 and 1949. This carryover of 3 million bushels is less than one-half the average carryover of around six and one-half million bushels for the years 1944-48, a period of heavy demand.

Feedstuffs, Feb. 4, 1950, p. 1.

SOYBEANS: GLIDDEN COMPANY TO OPEN NEW SOLVENT PROCESSING PLANT

A new soybean processing plant at Indianapolis, reported to be the most modern in existence, was turned over by the builder, Chemical Plants Division of the Blaw-Knox Co., to the owner, the Glidden Co. The new plant, which adds 250 tons to the daily soybean processing capacity of the Glidden Co., is reported to introduce the first large application of the Blaw-Knox "Rotocel," a newly developed solvent extractor. In addition to producing soybean oil and meal, the plant will recover lecithin, which is in wide demand as a food emulsifier and for industrial uses.

Journal of Commerce, Feb. 8, 1950, p. 18.

TUNG: SUPPORT PRICE FOR 1949 TUNG OIL IS ADVANCED BY 6 PERCENT

Although the basic price support rate for the 1950 tung nut crop will remain at 60 percent of parity, the Agriculture Department has announced an increase of 6 percent in the support price it will pay for 1949 tung oil. Previously, the Department purchased oil from producers at 22.7 cents a pound. It will now pay 24.1 cents a pound. Price supports for the remainder of the 1949 tung nut crop will be available until March 1, instead of January 31. The deadline for deliveries was extended to September 30 from June 30.

Wall Street Journal, Feb. 7, 1950, p. 5.

LINTERS AND CELLULOSE

LINTERS: DECEMBER PRODUCTION LOWER; JANUARY CONSUMPTION AND PRICES HIGHER

Production of linters declined to 203 thousand bales in December compared with 235 thousand in November and 205 thousand in December a year ago.

Bleachers used 86 thousand bales or 65 percent of the total consumption of 132 thousand bales in January. Other consumers have curtailed the use of linters somewhat. Since September, consumption by this segment of the industry has decreased steadily but nevertheless was at a level considerably higher than a year earlier.

The price of No. 2 grade linters increased moderately from December to January, and was the highest since May 1946. Substantial price increases were made by No. 4 and No. 6 grade linters. Prices of these two linters are now higher than any time in the past year and a half.

Table 15.- Cotton linters: Production, consumption by industries, stocks, and prices, United States, for specified months

	: January	: December	: November	: October	: January
	: 1950	: 1949	: 1949	: 1949	: 1949
	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000
	: bales	: bales	: bales	: bales	: bales
Production 1/.....	2/	203.0	235.0	227.0	187.5
Consumption 3/.....	132.0	131.2	131.5	143.1	122.8
Quantity bleached.....	85.5	83.6	82.8	84.5	80.6
Other industries.....	46.5	47.6	48.7	58.6	42.1
Stocks 4/.....	2/	568.0	530.0	468.0	672.0
Prices	: Cents 5/	: Cents 5/	: Cents	: Cents	: Cents
No. 2 grade, per lb.	: 10.60	: 10.02	: 9.86	: 10.29	: 7.99
No. 4 grade, per lb.	: 6.45	: 5.67	: 5.63	: 6.25	: 4.60
No. 6 grade, per lb.	: 3.09	: 2.26	: 2.02	: 1.92	: 2.99

1/ From Weekly Cotton Linters Review, PMA, Cotton Branch, USDA.

2/ Not available.

3/ From Facts for Industry, "Cotton and Linters," Bureau of the Census.

4/ Total stocks in consumer establishments, public storage and warehouses, and oil mills. Stocks at end of the month. From Facts for Industry, "Cotton Linters," Bureau of the Census.

5/ Preliminary.

PRICE OF PURIFIED LINTERS HIGHEST IN 8 MONTHS; WOOD PULP UNCHANGED

The January increase in the price of purified cotton linters pulp makes it the highest in 8 months, and well above all qualities of wood pulp. Further price increases in February are indicated. This increased price differential between purified linters and wood pulp could bring about a curtailment in the use of cotton linters pulp rather rapidly.

Table 16.- Average annual price of purified linters and dissolving wood pulp, 1946-48 and monthly quotations September-November 1949

(Cents per pound)

	: Purified	: Standard	: Wood pulp 2/	: Acetate
	: linters	: viscose	: viscose	: & cupra
		: grade	: grade	: grade
1946.....	9.50	5.60	5.85	6.15
1947.....	16.30	7.03	7.44	8.04
1948.....	11.25	7.93	8.44	9.20
1949.....	8.62	7.94	8.44	9.06
1949, October.....	8.00	7.50	8.05	8.55
1949, November.....	8.00	7.50	8.05	8.55
1949, December.....	8.35	7.50	8.05	8.55
1950, January.....	9.35	7.50	8.05	8.55

1/ Weighted averages, 1946-47. On 7 percent moisture basis, f.o.b. pulp plant.

Average freight to users is 0.5 cent per pound. Prices supplied by a producer.

2/ Average of average monthly prices, 1946-47. Compiled from Rayon Organon and from letters to us from producer. Wood pulp prices are 10 percent moisture basis, f.o.b. domestic producing mill, full freight, and 3 percent transportation tax allowed, Dec. 1, 1947 on; freight equalized with that Atlantic or Gulf port carrying lowest backhaul rate to destination plus 3 percent backhaul charges, prior to December 1.

MISCELLANEOUS PRODUCTS

PAPER: BAGASSE NEWS PRINT USED IN FIRST PRACTICAL TEST

Independent printing experts, as well as persons connected with the development of paper manufacture from bagasse, the waste of sugar cane, expressed satisfaction with the results of a test conducted in the pressroom of the Holyoke Daily Transcript-Telegram, Holyoke, Mass.

The newspaper printed 11,040 copies of an eight-page special edition on bagasse. Press speed was gradually increased to 33,000 papers per hour, the capacity of the press. According to William Dwight, Transcript-Telegram manager editor, "The paper rolled through the press without a web break. The run far exceeded our expectations." He also stated that the paper was a bit hard but it had a fine white color. Its receptivity of ink was good, and with further improvements toward softening the finish, this bagasse paper should be another source of news print for newspapers in areas where sugar cane is grown.

Daily Mill Stock Reporter, Jan. 31, 1950, p. 13.

PAPER: RAILROAD CROSSTIES AND POLES SEEN AS NEW SOURCE FOR KRAFT PAPER

Millions of rotting crossties discarded by the railroad industry each year may eventually become a vast source of new paper. Chemists at the Southern Research Institute, Birmingham, Ala., announce that they have found a way to convert railroad poles and crossties into a paper called "Old Crosstie Kraft."

Dr. R. C. Sproull, supervisor of Crosstie Kraft's development, said the railroad industry discards enough material each year to supply paper mills with about one-seventh of their need. Formerly wasted, this material amounts to about 2 million cords of wood a year, or 45 million crossties and many million poles. Wallboard also can be made from old ties and piles, Dr. Sproull stated, and during the processing some of the wood preservative may be recovered for reuse.

Daily Mill Stock Reporter, Jan. 24, 1950, p. 3.

STARCH: PERMA STARCH OUTPUT SOARS IN FIRST FULL YEAR OF PRODUCTION

Perma Starch, Inc., manufacturers of the world's first permanent plastic starch, produced 6 million bottles in 1949, the company's first full year of production, Perry V. Eakin, president, reported in a year-end statement.

Eakin said the product is being sold in every domestic market and that export shipments are now going to 11 foreign countries. Perma Starch, he said, was introduced in May 1948, after eight years of research involving 20 thousand experiments and the expenditure of one million dollars.

Capacity of the plant here is now being prepared, he said, to permit greatly increased production in 1950. He estimated that output would be stepped up to an annual rate of 12 million by spring and 18 million by the end of 1950.

Oil Mill Gazetteer, Jan. 1950; p. 37.